

## 2.0 An Overview of Key Issues Raised in Comment

This section summarizes key issues raised during the public comment process for the U.S. Department of Energy (DOE) draft Hanford Solid Waste Environmental Impact Statement (HSW EIS) (DOE-RL 2002a). It also provides the DOE responses to those key issues, including changes incorporated into the revised draft HSW EIS. DOE identified the issues as “key” based on factors such as:

- the number of comments received on a particular issue
- the extent to which an issue concerned fundamental aspects of the proposed action
- the nature of the comments characterized by the commenters
- the extent to which DOE changed the revised draft HSW EIS in response to the issue.

Key issues are grouped under the following seven general categories:

1. DOE’s Role in Hanford cleanup
2. National Environmental Policy Act of 1969 (NEPA) Process (including concerns related to the relationship with the Waste Management Programmatic Environmental Impact Statement (WM PEIS), the range of alternatives evaluated, impacts of accepting offsite waste and cumulative impacts)
3. Integration with Other Hanford Cleanup Plans and Documents
4. Public Involvement
5. Scope of Transportation Analysis
6. Technical Content and Scope of the HSW EIS
7. Disposal Facility Design and Long-Term Performance.

Subsequent sections of this CRD reproduce all comments received on the first draft HSW EIS and provide the DOE responses to those comments. DOE encourages readers to review the specific comments and DOE responses for particular areas of interest.

### 1. DOE’s Role in Hanford Cleanup

#### *Isn’t environmental cleanup the top priority for DOE at Hanford?*

Environmental cleanup is a top priority at Hanford and other DOE sites. Cleanup activities are being performed in accordance with the milestones and other provisions of the Hanford Federal Facility Agreement and Consent Order (Ecology et al. 1989, also referred to as the Tri-Party Agreement, or TPA).

As part of the river corridor cleanup, DOE has begun remediating contaminated soil sites, decommissioning the plutonium production reactors and associated facilities, removing production reactor fuel from the K Basins to interim storage in the 200 Area, and treating groundwater contaminated by past operations. Transitioning the Central Plateau will ultimately involve cleanup of additional waste sites. It will also mean decommissioning excess facilities, including Hanford's reactor fuel processing canyons and plutonium processing facilities, and the stabilization of plutonium and uranium. It will also mean the construction of new facilities needed to treat and dispose of radioactive and mixed wastes, decommissioning of Hanford's high-level waste (HLW) storage tanks, and shipment of transuranic (TRU) waste, HLW, and production reactor fuel to offsite disposal facilities.

DOE cleanup activities have included the following:

- clean up over 200 contaminated soil and waste sites, mainly in the river corridor
- decommissioning over 500 inactive facilities, largely during the river corridor restoration
- placement of one production reactor into safe interim storage and begun work on four of the remaining reactors
- stabilization and movement of nearly 1000 metric tons of a total of 2100 metric tons of production reactor fuel from the K Basins to storage in the 200 Area
- disposal of nearly 4 million tons of environmental restoration waste in a permitted facility
- shipment of nearly 900 metric tons of uranium to an offsite storage facility
- ongoing treatment and disposal of mixed low-level waste (MLLW) in permitted facilities
- ongoing disposal of low-level waste (LLW) in 200 Area burial grounds
- ongoing retrieval of TRU waste stored from the 200 Area Low Level Burial Grounds (LLBGs), with 300 cubic meters received to date
- ongoing stabilization of plutonium waste stored in the 200 Areas, including 394 items of plutonium, plutonium metal, or plutonium oxides stabilized; 446 kg of pre-packaged plutonium shipped to date
- ongoing certification of TRU waste and shipments to Waste Isolation Pilot Plant (WIPP), with 80 cubic meters of TRU waste shipped to WIPP
- ongoing treatment of contaminated groundwater beneath the 100 and 200 Areas. As of late 2001, 4 billion liters of groundwater had been treated to remove nearly 300 kg of chromium, over 6,000 kg of carbon tetrachloride, 20,000 kg of nitrate, 130 kg of uranium, 80 g of technetium-99, and 1.1 Ci of strontium-90. An additional 77,000 kg of carbon tetrachloride has been removed from the soil by

vapor extraction to prevent future groundwater contamination and to mitigate risk to workers (Poston et al. 2002).

- initiation of construction of the Waste Treatment Plant for vitrification of Hanford's high-level tank waste
- removal and stabilization of single-shell tanks.

***What has DOE done to protect Hanford's ecological environment?***

Approximately 6 percent of the total surface land area within the Hanford Site has been used for production and waste management activities. The remainder of the site has been managed by DOE as a buffer zone, which provides protection for the cultural, biological, and natural resources located within the site boundaries. Many areas on the site are undisturbed and are as environmentally pristine as they were before the Hanford national defense mission was undertaken during World War II (Poston et al. 2002).

On June 9, 2000, William J. Clinton, by Presidential Proclamation, created the Hanford Reach National Monument under the authority of the 1906 Antiquities Act (65 FR 37253). As established, the Monument totals 792.6 km<sup>2</sup> (306 mi<sup>2</sup>) and includes the Fitzner/Eberhardt Arid Lands Ecology Reserve, Saddle Mountain Wildlife Refuge, McGee Ranch/Riverlands Area, and land ¼ mile inland from the mean high-water mark on the south and west shores of the 51-mi-long Hanford Reach, the last free-flowing, non-tidal stretch of the Columbia River. It also includes Wahluke Slope, federally owned islands in the Hanford Reach, White Bluffs, and the sand dune area northwest of the Energy Northwest Site. This designation establishes the protection and management of the lands within the region of the monument. By memorandum, the President also directed the Secretary of Energy to consult with the Secretary of the Interior regarding the incorporation of additional Hanford Site lands into the Monument as the land is remediated.

***What is the DOE role in the Hanford cleanup and long-term management of the Hanford Site?***

The Hanford Site is owned by the United States government, and the federal agency responsible for its operation is DOE. DOE's many Hanford management responsibilities range from national security and defense production in the past, to waste management and environmental restoration in the present, to long-term stewardship in the future. DOE authorities for managing Hanford come from the Atomic Energy Act of 1954, as amended (42 USC 2011), and from other laws and regulations that mandate the operation of U.S. federal agencies.

DOE is responsible for establishing requirements in certain areas such as the management of most radioactive materials, but, as a federal agency, is also responsible for complying with other applicable legislation and is regulated by other federal agencies and the State of Washington in accordance with that legislation. Other legislation includes National Environmental Policy Act (NEPA), as amended (42 USC 4321); the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, 42 USC 9601); the Resource Conservation and Recovery Act (RCRA) of 1976

(42 USC 6901); the Endangered Species Act of 1973 (16 USC 1536); the Clean Water Act (33 USC 1251), the Clean Air Act (42 USC 7401), and the Toxic Substances Control Act (15 USC 2601). DOE's responsibilities for waste management and restoration under the TPA are examples of DOE's responsibilities to comply with applicable provisions of CERCLA, RCRA, and State of Washington dangerous waste management regulations. The DOE activities at Hanford are subject to other applicable regulatory programs of federal and state agencies such as the State of Washington Department of Ecology, EPA, and the U.S. Fish and Wildlife Service.

## **2. National Environmental Policy Act Process**

DOE received a number of comments regarding the adequacy of the HSW EIS with respect to NEPA and the NEPA process. These comments can be grouped into two categories. The first deals with the relationship between the HSW EIS and the *Final Waste Management Programmatic Environmental Impact Statement for Managing Treatment, Storage, and Disposal of Radioactive and Hazardous Waste* (WM PEIS, DOE 1997). The second focuses more specifically on NEPA compliance and process, including the adequacy of scope, alternatives selected versus reasonable alternatives, the TPA, and whether the goals and objectives of State and local governments had been adequately accommodated. These categories are briefly discussed in the following sections.

### ***What is the relationship between the WM PEIS and HSW EIS?***

The WM PEIS evaluated a DOE nation-wide strategy to treat, store, and dispose of radioactive and hazardous waste in a safe, responsible, and cost-efficient manner in compliance with applicable regulations. The HSW EIS is a site-specific NEPA document. It evaluates the alternatives for managing most solid, radioactive, and hazardous operational waste that exists at Hanford, or which may be received at Hanford in the future consistent with the WM PEIS Records of Decision (RODs), which are summarized in an Attachment B of this document.

### ***Why does DOE rely on referencing historical Hanford technical documents, policy statements, or historical EISs?***

Under NEPA, agencies are encouraged to eliminate repetitive discussion of issues and focus on the actual issues ready for decision at each level of environmental review (40 CFR 1502.20). This is appropriate when it helps the lead agency focus on issues ripe for decision and excludes from consideration issues already decided or not ready for decision.

Agencies may also incorporate information into an EIS "by reference" where the effect is to reduce the bulk of the document without impeding agency and public review. The incorporated material must be cited and its content briefly described. No material may be included by reference unless it is reasonably available for inspection by potentially interested persons within the time allowed for comment (40 CFR 1502.21). DOE incorporated by reference a number of documents cited in the HSW EIS, including the WM PEIS.

***Are the HSW EIS and the process leading to an ROD complying with applicable NEPA regulations?***

Yes. DOE has adhered to Council on Environmental Quality (CEQ) and DOE NEPA requirements (40 CFR 1500-1508; 10 CFR 1021) in conducting the scoping process for both this HSW EIS and ILAW SEIS and in preparing this HSW EIS.

***Why doesn't the purpose and need statement of the draft HSW EIS specify the purpose and need of the proposed action?***

An EIS must briefly specify the purpose and need to which the agency is responding in proposing the alternatives, including the proposed action (40 CFR 1502.13). The HSW EIS purpose and need statement has been clarified based on public comments received, to provide a better description and framework for the proposed action and associated alternatives.

***Why didn't DOE include evaluation of other alternatives and give an explanation as to why they were eliminated?***

A description and comparison of reasonable alternatives was presented in Section 3 of the first draft HSW EIS. Other alternatives considered were described in Section 3, and rationale was provided for the limited evaluation of these alternatives in detail. The alternatives that were evaluated in the first draft HSW EIS were configured to meet DOE's underlying purpose and need, to implement decisions previously made under the WM PEIS, and to be consistent with other DOE and Hanford NEPA documents. The revised draft HSW EIS evaluates an expanded range of alternatives in response to public comments and other factors.

***Why doesn't DOE create and evaluate a new alternative not to import offsite waste to Hanford?***

In the WM PEIS, DOE previously evaluated alternatives that would have resulted in not bringing additional offsite wastes to Hanford. The WM PEIS evaluated no action, decentralized, regionalized, and centralized alternatives for LLW and MLLW management. The decentralized alternative evaluated management of wastes where they were generated. The regionalized and centralized alternatives evaluated impacts of importing wastes to large sites such as Hanford. The WM PEIS decisions did not specify which sites would send their wastes to Hanford and Nevada Test Site.

The revised draft HSW EIS addresses uncertainties in waste volumes that might ultimately be received for management at Hanford by evaluating each alternative for a range of potential waste volumes. The revised draft HSW EIS evaluates three waste volumes for each alternative: 1) a Hanford Only waste volume, 2) a Lower Bound waste volume, and 3) an Upper Bound waste volume. The Hanford Only volume consists of forecast waste receipts from generators at the Hanford Site, in addition to waste currently buried or in storage at Hanford. The Lower Bound waste volume consists of the Hanford Only volume plus forecast waste quantities from other DOE sites that currently plan to send waste to Hanford. The Upper Bound waste volume consists of the Lower Bound waste volume plus additional offsite waste that could be received at Hanford in the future because of the WM PEIS decisions.

***How does DOE address cost-benefit analysis supporting the alternatives?***

Section 3.7 of the first draft HSW EIS discussed the costs of the various alternatives that were considered. The discussion has been updated in the revised draft HSW EIS. However, CEQ regulations do not require agencies to conduct a formal cost-benefit analysis with monetary values (40 CFR 1502.23). Agency decision makers may consider costs along with environmental impacts and other factors in reaching decisions.

***How does DOE plan to address the requirements of NEPA to consider cumulative impacts?***

Section 5 of the first draft HSW EIS addressed environmental consequences including cumulative impacts on land use, air quality, ecological and cultural resources, socioeconomics, public health, and worker health and safety. The first draft HSW EIS provided conservative analyses to bound and compare the consequences of the alternatives.

This revised draft HSW EIS includes expanded discussion of the long-term impacts of LLW and MLLW disposal on human health and the environment, incorporating dose and time-related considerations to the extent possible. Updated inventory information and calculations from the Hanford System Assessment Capability have been incorporated.

**3. Integration with Other Hanford Cleanup Plans and Documents**

***What is the relationship between the HSW EIS and TPA?***

The TPA establishes milestones to bring DOE operating facilities into compliance with RCRA standards and to coordinate cleanup of past Hanford solid waste disposal facilities under CERCLA. This EIS analyzes certain activities that DOE proposes to take to meet related TPA milestones according to the agreed-upon schedule in the TPA.

***Did DOE consider the 2002 Hanford Performance Management Plan in developing the HSW EIS alternatives?***

This revised draft HSW EIS acknowledges key DOE management initiatives, including *Performance Management Plan for the Accelerated Cleanup of the Hanford Site* (HPMP, DOE-RL 2002a). The revised draft HSW EIS includes additional clarification of how input from these management initiatives and public comments assisted DOE to develop alternatives and identify a preferred alternative.

***Shouldn't the draft HSW EIS provide more information about other Hanford environmental protection programs and requirements?***

This revised draft HSW EIS includes summaries of the major components of the proposed action regulatory framework in Section 6. Detailed evaluation of other environmental regulatory programs and their requirements is more appropriately addressed in the documentation prepared for those programs.

Information about CERCLA, RCRA, dangerous waste management, groundwater monitoring, closure, post-closure care, and corrective action requirements is also addressed in detail in environmental documentation prepared pursuant to the TPA, the Hanford dangerous waste management permit, and the pending dangerous waste management permit application for LLBG disposal facilities.

#### **4. Public Involvement**

##### ***How does DOE advertise and notify the public of public meetings?***

DOE maintains open channels of communication with members of potentially affected groups and other interested parties. The public involvement process for the first draft HSW EIS consists of several outreach efforts to assure a full exchange of information. Some of these outreach efforts include briefings to the HAB, tribal groups, and state regulatory agencies; distribution of postcards announcing the release of the first draft HSW EIS to over 3000 interested individuals and organizations; advanced mailing of fact sheets announcing the public meetings; press releases; and newspaper advertisements in the Tri-Cities, Walla Walla, Yakima, Hood River, The Dalles, Camas, Goldendale, Pendleton, Portland, Seattle, Spokane, and Boise. For the revised draft HSW EIS, a similar procedure is being followed. Information on the availability of the revised draft HSW EIS and the schedule for public meetings was sent to anyone who requested information, attended a public meeting, or submitted comments on the first draft.

##### ***How was the public involved in the consideration of transportation risk issues?***

The public has had numerous opportunities to contribute to discussion of transportation risk issues during the process for providing input to the WM PEIS, WIPP EIS, Yucca Mountain EIS, and the first draft HSW EIS. An opportunity was provided for public comments regarding transportation risk during the public involvement process for the WM PEIS. The WM PEIS evaluated potential impacts associated with transporting four types of radioactive wastes (LLW, MLLW, TRU waste, and HLW) by truck and by rail. DOE provided a 150-day public comment period for the WM PEIS and received a total of more than 1,500 comments, many raising transportation issues.

##### ***What we say doesn't matter so why are we here?***

DOE considers public input a valuable and critical step in the NEPA process. DOE solicited input from regulators, tribal nations, and members of the public over a three-month comment period on the first draft HSW EIS. Both oral and written comments were received at public meetings. Written comments were also accepted by conventional and electronic mail. Comments were provided on several common topics including the following: coordination with other EIS and DOE activities; alternatives and activities to analyze; waste types and volumes to analyze; public health; environmental consequences; transportation risk; public involvement; and government agency consultation. DOE considered all comments received.

DOE changed this revised draft HSW EIS based on comments received. Responses to specific comments appear in the following sections of this comment response document. Some examples of modifications made include the following:

- new alternatives for disposal of LLW, MLLW, and ILAW at Hanford to provide a more comprehensive analysis of disposal facility locations and configurations, including use of lined trenches for all waste
- specific analysis of consequences for management of Hanford-generated waste so the incremental impacts of managing various quantities of offsite waste can be determined
- summaries of offsite transportation risk from the WM PEIS and estimates of risk along the Oregon and Washington portions of the shipping corridor
- expanded groundwater impact analysis to show the combined impacts of various onsite wastes over time. The cumulative impacts include estimates of groundwater consequences for wastes evaluated in this HSW EIS, in addition to other wastes that are expected to remain at Hanford over the long term.

***What will the public involvement process be for the second round of comments and how will it be different from the first?***

As with the first draft HSW EIS, DOE will seek input from regulatory agencies, tribal nations, and members of the public on the revised draft HSW EIS. To ensure that interested parties are able to respond to the revised draft, DOE plans to conduct additional public hearings and provide a 45-day comment period. Notification letters were sent to all individuals who requested information, attended meetings, and commented on the first draft HSW EIS. DOE will consider all comments received in preparing the final HSW EIS, which will include responses to comments.

***Why aren't the meetings longer so everyone can speak?***

At Hood River, La Grande, Seattle, and Richland, everyone who wanted to speak was given the opportunity to do so. At Portland, due to facility time limitations, some who signed up to speak were not able to do so. As a result, a second Portland meeting was held. Prior to the second Portland meeting, an effort was made to contact directly those who had requested to speak at the first meeting but were not able to because of time limitations. In addition, forms for providing written comments were available at all public meetings.

***Why was document accessibility (especially to the WM PEIS) so limited?***

Consistent with NEPA requirements DOE provides access to documents referenced in the first draft HSW EIS. As a result of the September 11 terrorist attacks, DOE's sensitivity to national security issues has increased. Because of the detailed information contained in many NEPA documents, Internet access to those documents has been restricted. However, copies of referenced documents are available at DOE reading rooms for use by the public. Summary information regarding the *Final Waste Management Programmatic Environmental Impact Statement* is also available at a DOE Office of Environmental Management Internet bulletin board. Because of the concern expressed regarding document accessibility, the WM PEIS and other key references cited in the HSW EIS are available on CD-ROM upon request.



The WM PEIS was widely distributed to individuals, groups, and agencies within the Hanford region during the public comment period for that document. It was also available in numerous DOE public reading rooms and libraries (including seven in Washington and one in Oregon).

## **5. Scope of Transportation Analysis**

### ***Why weren't offsite transportation risks presented in the HSW EIS?***

The environmental impacts of offsite waste transportation were previously evaluated in the WM PEIS. The WM PEIS considered shipment by rail as well as by truck and addressed all waste types, including both contact-handled and remote-handled TRU waste shipped to or from Hanford. The revised draft HSW EIS presents additional information on transportation impacts on the Oregon and Washington portions of the shipping routes, based on distance traveled and overall accident rates on the corridors.

## **6. Technical Content and Scope of this HSW EIS**

### ***The HSW EIS needs to include more information in its evaluations of impacts.***

The level of information and analysis provided in this HSW EIS is consistent with applicable requirements and sufficient for current DOE decision-making needs. DOE has used the best available data to analyze the alternatives, the affected environment, and the impacts. These include reports and studies sponsored by DOE, other federal agencies, the State of Washington, and universities. Consistent with NEPA requirements, incomplete or unavailable information and uncertainties in the EIS analyses are noted in the EIS.

### ***Why did DOE limit the scenarios in the human health impact analysis?***

This HSW EIS evaluates a number of health impact scenarios using representative individuals and groups that could be exposed from continued and enhanced solid waste operations at Hanford. These scenarios are consistent with health impact analyses in recent Hanford-related NEPA documents and with scenarios used to assess the impacts of Hanford operations in the Annual Hanford Environmental Report (Poston et al. 2002). The scenarios are summarized in Section 5.11 and described in detail in Appendix F of this revised draft HSW EIS. DOE believes these scenarios adequately address potential human activities during normal operations, during postulated accidents, and during long periods after closure of waste management units, including intrusion into waste disposal areas long after closure and impacts from use of groundwater or the Columbia River. The scenarios were selected to include activities that anyone living in the area would be engaged in, including activities postulated for persons having special living habits such as Native Americans. The scenarios also were selected to ensure that sufficient information would be available to support the specific actions for which the EIS was developed.

Although the human health impacts from management of Hanford-generated wastes and offsite wastes were not explicitly developed or presented in the first draft HSW EIS, the analyses included two waste volumes, the lower of which consisted largely of Hanford waste. The incremental impacts of

offsite waste in the Lower Bound waste volume were expected to be very small based on the relative waste volumes from offsite and onsite generators. The revised draft HSW EIS evaluates impacts of waste from Hanford generators in addition to the two waste volumes analyzed previously, providing a direct assessment of the incremental impacts from managing offsite waste.

#### ***How did DOE determine the scope of the Groundwater Impact Analysis?***

Consistent with its scope, this HSW EIS evaluates the groundwater impacts of managing solid LLW, MLLW, TRU waste, and ILAW at Hanford. To perform the evaluation, DOE employed methods for estimating (based on available information) the total quantity of radionuclides from all sources at Hanford that could affect groundwater. Prior to disposal, as proposed in this HSW EIS, MLLW would be treated in accordance with applicable standards to meet waste acceptance criteria. Therefore, based on available information, the remaining chemical constituents of this waste are not expected to contribute substantially to cumulative groundwater impacts from previously disposed of waste. For groundwater and cumulative groundwater impacts from proposed actions analyzed in this HSW EIS, see Section 5.3 and Appendix G, and Section 5.14 and Appendix L, respectively, in Volumes I and II of this EIS.

#### ***How did DOE conduct the Ecological Impact Analysis?***

Areas of Hanford that would be affected by actions proposed in this HSW EIS were field surveyed to determine which threatened and endangered species and ecosystems of concerns could be impacted. Ecological resources that existed before and after the 24 Command Fire are described. The impacts of the proposed actions on terrestrial and aquatic animals and plants are evaluated. See Section 5.5 of Volume I and Appendix I of Volume II for more information.

#### ***Why does DOE keep making more waste at Hanford?***

Waste management activities evaluated in this HSW EIS are an integral part of the cleanup mission at Hanford and other DOE sites. Although some of the waste is referred to in the HSW EIS as “newly generated,” the majority of waste forecast for management at Hanford consists of radioactive and hazardous material that currently exists at contaminated sites or facilities. When those sites are remediated or the facilities are decommissioned and demolished, the resulting contaminated materials from the cleanup must be properly managed. Without facilities to treat and dispose of those materials in compliance with regulatory requirements, their impact on the environment and the risk to human health would ultimately be much greater.

The HSW EIS alternatives include proposed facilities to treat MLLW, to process and certify TRU waste for disposal at WIPP, and to dispose of LLW, MLLW, and ILAW. Those facilities are essential for management of waste that will be generated during many cleanup projects at Hanford and other DOE sites, including treatment of Hanford’s tank waste, removal of production reactor fuel from the K Basins, stabilization of materials that remain in plutonium processing facilities, and various environmental restoration projects.

### **7. Disposal Facility Design and Long-Term Performance**

***Why would DOE even consider unlined trenches for burying radioactive wastes?***

The use of unlined trenches for disposal of LLW is an established, legal, and environmentally protective method of LLW disposal. It is a practice used in conjunction with other administrative and engineering controls that provide environmental protection. DOE uses liner and leachate collection systems for disposal of MLLW.

***Why would DOE want to add to groundwater and vadose zone contamination?***

Land disposal is a safe and cost-effective means of waste disposal used throughout the United States and throughout the world. Its environmental impacts are less than leaving wastes in areas that are more accessible to humans and wildlife. The environmental risks of land disposal include the potential for contamination of the underlying vadose zone and groundwater resources. DOE believes that the risks associated with properly disposing of the waste in HSW disposal facilities are lower than leaving radioactive and mixed wastes in other more environmentally accessible locations.

DOE has undertaken a number of activities at Hanford to clean up and prevent the spread of existing groundwater contamination plumes. DOE has a number of ongoing pump-and-treat operations, including:

- the 100 H, 100D, and 100K Areas for chromium
- the 100N Area for strontium-90
- the 200 West Area for carbon tetrachloride, uranium, and technetium-99.

DOE has been monitoring groundwater on the Hanford Site since the 1940s, and a centralized Hanford Groundwater Monitoring Project since 1996 assures protection of the public and the environment while improving the efficiency of monitoring activities.

***The HSW EIS states that any environmental impacts to the Columbia River would be long term. Why doesn't the HSW EIS state when contamination will reach the Columbia River and how long the contamination will affect the river?***

This HSW EIS evaluates when contaminants will reach the Columbia River and the effects on the river (see Section 5.3). Recognizing the potential threat to the Columbia River and human health from groundwater contamination in the 200 Areas, DOE evaluated groundwater contamination and flows toward the river over the long term, defined to be 10,000 years beyond cessation of operations at Hanford. The results of analysis are provided in Sections 5.3 and 5.11 and Appendixes F and G, in Volumes I and II of this HSW EIS.